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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,365	12/30/2003	Kyung-Ju Choi	03-1AAF	7814

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JOHN F. SALAZAR
MIDDLETON & REUTLINGER
2500 BROWN & WILLIAMSON TOWER
LOUISVILLE, KY 40202

EXAMINER	
DRODGE, JOSEPH W	
ART UNIT	PAPER NUMBER
1723	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/748,365	CHOI, KYUNG-JU	
	Examiner	Art Unit	
	Joseph W. Drodge	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *36-62* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *36-62* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 36-39 and 43-46 and 59-62 are rejected under 35 U.S.C. 102(b) as being anticipated by Kahler patent 5,888,262.

Regarding Claim 36, Kahler discloses a pleated fluid filter arrangement comprising: at least one layer of fluid filter media (#2,5) pleated into a plurality of longitudinally extending adjacent opposed successive pleat flanks of selected depth and spacing between successive pleat flanks 2 to provide spaced upstream and downstream filter face crests. The pleat flanks 2 are substantially planar and have embossed depressions or projections 3 that also have outer planar surfaces that face each other. The successive pleat flanks have minimal wave formation as they are disclosed as being stable, rigid and firmly joined together and resistant to being deformed by turbulent flow components or pressure changes, hence are of high compressive and tensile strength (column 4, lines 46-49, column 7, lines 36-42 and column 8, lines 8-12). Also, see column 9, lines 58-64 concerning manufacture of the pleated filter to obtain the rigidity, hence resistance to wave formation.

The pleat flanks are spaced by adhesive spacers, which may be of spaced, optionally of communicatively facing increments of spaced formed material increments (#6 or 16(, (see figures 2a through 5d, especially 2c, 3c and 5c) extending in selected lengths between the spaced upstream and downstream filter face crests. The spaced form material may be substantially centrally located and spaced from filter face crests as shown particularly in the embodiments of figures 2c and 3c). The adhesive spacer increments are adhered to the planar projecting surfaces of the pleat flanks (column 3, line 62-column 4, line 8 and column 8, lines 8-13).

The top or fold edges of the pleat flanks together form a substantially single planar surface, the facing increments being adhered to such planar surface (or a planar surface) in embodiments where the depressions or elevations thereof start immediately at the fold edge (column 4, lines 26-33, column 8, lines 33-36 and 63-66). The latter text of column 8 concerns adhering of increments to the planar surface formed by the top edges.

Regarding Claim 37, Kahler discloses the increments of the spaced formed material increments being selected from a suitable fluid pliable adhesive (Col. 8, Lines 33-36).

Regarding Claim 38, Kahler discloses the communicatively facing increments of the spaced formed material increments being of selected thickness so that the distance between adjacent successive pleat planks and between the spaced upstream and downstream filter face crests is substantially equal (Figs. 2a-5d and especially figure 6).

Regarding Claim 39, Kahler discloses the adjacent successive pleat flanks being of a substantially uniform level geometric configuration (Figs. 2a-5d).

Regarding Claim 44, Kahler discloses the communicatively facing formed material increments being in increment first and second sets with at least selected increments of at least one set overlapping with respect to selected pleat crests of the other set (Fig. 5d, material 16.1b' also functioning as spacing material).

Regarding Claim 45, Kahler discloses the communicatively facing formed material increments being in formed material increment first and second sets with at least selected formed material increments of one set differing in length from at least one of the lengths of other formed material increments in the sets (see especially Figs. 5c,5d).

Regarding Claim 43, Kahler discloses that the communicatively facing increments being in the form of substantially similar length increment first and second sets with at least one of the sets having a substantially uniform cross-section with at least one certain select increment of the other set being of differing cross-section wherein at least one certain pair of communicatively facing increment is tapered to provide tapered spacing and a overall geometric configuration conducive to a select geometric configuration (Figs. 5a-5d).

Regarding Claim 46, Kahler discloses that the communicatively facing formed material increments being in formed material increment first and second sets with at least one of the selected formed material increments of one set differing in cross-sectional breadth from a cross-sectional breadth of at least one of the other formed material increment of the other set (Figs 5a-5d).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 47 is rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as being unpatentable over Kahler.

Regarding Claim 47, Kahler does not disclose the communicatively facing formed material increments being pressure displaced increments. Determination of patentability in "product by process" claims is based on product itself. In re Thorpe, 227 USDQ 964 (1985). The increment formation process of Kahler is deemed to form a pleated filtering structure by a process with is an equivalent alternative to the claimed pressure displacement process with no commensurate difference in end product.

Claims 40-42, 48, 50-52, and 54-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kahler in view of Enborn of record and Cusick et al., U.S. Patent No. 5,993,501.

Regarding Claim 40, Enborn teaches a pleated filter with spacers and also teaches a support layer (#6) but does not disclose the material of the filter media. Cusick teaches a pleated fluid filter comprising at least one layer of selected scrim material (#24, 26) serving as a support layer and a selected fine synthetic (Col. 2, Lines 48-60) filter media material (#22) applied to the selected scrim material. It would have been obvious to one of ordinary skill in the art to modify Kahler with the support element of Enborn and Cusick, in order to maintain the shape of the filter layer against applied fluid pressures occurring during filtering operation, synthetic support layer materials are common in the filter art.

Regarding Claim 41, Cusick discloses that the scrim material is in the range of approximately forty to two hundred grams per square meter in basic weight (Col. 8, Lines 7-18) but does not disclose the fiber size, or stiffness of the scrim material. One of skill in the art would by routine experimentation find the optimum fiber size, and stiffness. It would have been obvious to one of skill in the art to make the fiber size, and stiffness of the scrim of Kahler in view of Cusick as so desired or required, including as claimed to optimize filtration.

Regarding Claim 42, Cusick discloses that the scrim material includes with a selected hot melt spray (Col. 5, Lines 20-24) of adhesive amorphous material (Col. 6, Lines 28-52) and the filter media material is of a relatively estimated selected weight, fiber, thickness and porosity (Col. 5, Lines 12-20) when applied to the hot melt spray coating.

Regarding Claim 48, Cusick discloses that at least one layer of filter media is of synthetic fibrous material (Col. 2, Lines 48-60).

Regarding Claim 50, Cusick discloses that at least one selected scrim layer has been fed to a forming zone as a downstream support layer and a selected fine synthetic filter media material has been applied thereto (Col. 11, Lines 45-52).

Regarding Claim 51, Cusick discloses that downstream support layer includes synthetic material (Col. 7, Line 54 – Col. 8, Line 18).

Regarding Claim 52, Cusick discloses that the downstream support layer is of wet-laid material (Col. 8, Lines 7-13).

Regarding Claim 54, Kahler in view of Cusick does not disclose that the downstream support layer is of dri-laid material. Determination of patentability in "product by process" claims is based on product itself. In re Thorpe, 227 USDQ 964 (1985). The support layer forming method of Kahler in view of Cusick is deemed to be a structure alternative to the dri-laid process.

Regarding Claim 55, Cusick discloses that the downstream support layer is of spunbond material (Col. 8, Lines 7-13).

Regarding Claim 56, Cusick discloses that the selected fine synthetic filter media is of meltblown material (Col. 6, Lines 5-9).

5. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kahler in view of Enborn and Cusick as applied to Claim 48 above, and further in view of Niccum et al., U.S. Patent No. 3,849,314.

Regarding Claim 49, Kahler in view of Enborn and Cusick does not disclose that the filter media is of cellulose material. Niccum teaches a pleated fluid filter comprising a cellulose filter media (Col. 2, Lines 53-56). It would have been obvious to one of ordinary skill in the art to modify Kahler in view of Cusick with the element of Niccum because it is a material of manufacture common in the filter art.

6. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kahler in view of Enborn and Cusick as applied to Claim 50 above, and further in view of Osendorf, U.S. Patent No. 5,427,597.

Regarding Claim 53, Kahler in view of Enborn and Cusick does not disclose that the downstream support layer is of cellulose material. Osendorf teaches a pleated fluid filter comprising a cellulose support layer (Col. 3, Lines 1-3). It would have been obvious to one of ordinary skill in the art to modify Kahler in view of Cusick with the element of Osendorf because it is a material of manufacture common in the filter art.

7. Claims 57-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Enbom in view of Cusick as applied to Claim 56 above, and further in view of Kenigsberg et al., U.S. Patent No. 5,156,780. Regarding Claims 57-58, Kahler in view of Cusick does not disclose an additive being added to the filter media. Kenigsberg teaches a process for adding a fluoro chemical to a porous media (Col. 4, Lines 33-38). It would have been obvious to one of ordinary skill in the art to modify Kahler with the element of Kenigsberg in order to achieve permanent water and oil repellency while maintaining the porosity of the filter (Col. 3, Lines 52-54).

Applicant's arguments filed on 24 January 2007 have been fully considered but they are not persuasive. It is argued that Kahler does not disclose the single substantially planar surface now claimed. It is submitted that , in Kahler, the top or fold edges of the pleat flanks together form a substantially single planar surface, the facing increments being adhered to such planar surface (or a planar surface) in embodiments where the depressions or elevations thereof start immediately at the fold edge (column 4, lines 26-33, column 8, lines 33-36 and 63-66). The latter text of column 8 concerns adhering of increments to the planar surface formed by the top edges.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at telephone number 571-272-1140. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin, can reached at 571-272-1189. The fax phone number for the examining group where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD

02/23/07

Joseph Drodge
Primary Examiner